



SCHOOL OF GRADUATE STUDIES

**PREVALENCE AND ASSOCIATED FACTORS OF UTERINE FIBROIDS
AMONG REPRODUCTIVE AGE WOMEN ATTENDING GYNECOLOGY
UNIT IN GURAGE ZONE HOSPITALS, CENTRAL ETHIOPIA, 2024.**

MSC THESIS

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Prevalence and associated factors of uterine fibroid among reproductive age women attending gynecology unit in Gurage Zone Hospitals, Central Ethiopia, 2024.

A Thesis submitted to school of Graduate Studies, in partial fulfillment of the requirements for the degree of Master Science (Msc) in Maternity and Reproductive health.

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List of abbreviation

BMI	Body Mass Index
CI	Confidence Interval
COC	Combined Oral Contraceptives
KM	Kilo Meter
KG	Kilo Gram
M ²	Meter Square
OBY/GYN	Obstetrics and Gynecology
SER NO	Serial Number
SPSS	Statically Package Social Science
UF	Uterine Fibroid
USA	United State America
WUTSH	Wolkite University Teaching Specialized Hospital
WHO	World Health Organization

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Abstract

Introduction: Uterine fibroid is one of the most common benign smooth muscle tumors of the uterus that affect women of reproductive age. The prevalence of fibroids is significant with estimates that 20-25% of women and about 235 million of women who represent 6.6% of global women population estimated to be affecting worldwide. In our country the prevalence and associated factors of uterine fibroids among reproductive age women is still unclear, thus, this study aimed to assess the prevalence and associated factors of uterine fibroids among women attending gynecological unit in Gurage Zone Hospitals, 2024.

Methods: An institution based cross-sectional study was conducted in 2024, involving 342 study participants who were selected consecutively during the study period. The data were collected by using pre-tested structured questioners and data were entered into epi-data manager Version 4.2 and subsequently exported to SPSS version 20 for analysis. Bivariable and Multivariable Logistic regressions analysis were performed to identify associated factors for uterine fibroids considering of 95% CI and P-value of < 0.05 .

Results: The prevalence of uterine fibroids among reproductive age women was 22.1%. The mean age of respondents was 33.4 and $SD \pm 6.8$ years. Factors such as, age between 36-45 years (AOR = 8.635, 95% CI (1.179 - 63.223); participants educational status of secondary level (AOR = .040, 95% CI (.003-.485); experiencing infertility (AOR = 18.626, 95% CI (4.336 - 80.011); obstetrics and gynecology related surgeries (AOR = 15.520, 95% CI (5.755 - 41.854); ever used of contraceptives (AOR = .267, 95% CI (.094 - .759); late age of menarche (AOR = .031, 95% CI (.001- .646); and family history of uterine fibroids (AOR = 6.705, 95% CI (2.464 - 18.248); were significantly associated with uterine fibroids.

Conclusion

In this study, the prevalence of uterine fibroids found to be relatively high. Major predictors such as age of women, participant educational status, infertility, obstetrics and gynecology related operation, contraceptives, family history, and late menarche age was found to be predictors of uterine fibroids. Therefore, encourage of the women early childbirth, promotion of contraceptives pills through long times should be promoted by health information and health education program.

Keyword: Prevalence, Uterine fibroids, Associated Factors, Ethiopia

1. INTRODUCTION

1.1. Background

Uterine fibroids which are also known as uterine myioma, or leiomyoma, are one of most common benign smooth muscle tumors of the uterus that affect women of reproductive age. The impact of fibroids across the population can varies widely ranging from 4.5 -68.6% (1).

Globally uterine fibroids are seen in more than 80% of women of Africa ancestry and 70% of white women may develop fibroids by the time they reach menopause (2).

Although uterine fibroids are benign tumors if unless treated they can cause a number of unpleasant side effects in a woman's life, these include severe anemia, irregular and heavy menstrual bleeding, dysmenorrhea, incontinence, infertility, pelvic pressure and pain, even urinary and early and recurrent miscarriages (3).

Fibroids are the most common prevalent benign tumors of the uterus and the leading cause of surgical procedure in gynecology (4). If not properly managed, fibroids can cause chronic health issues and, in some cases, may even result in mortality. In communities with limited access to health care, uterine fibroids can significantly affect a woman's quality of life (5).

The potential effects of uterine fibroids on pregnancy, as well as the impacts of pregnancy on these tumors are common clinical concerns (6). Complications associated with fibroids occur in approximately 10-40% of pregnancies in the presence of fibroids (6, 7). Their presence has been linked to several adverse outcome, including spontaneous abortion, premature labor, soft tissue dystocia, uterine inertia, fetopelvic disproportion, malposition of the fetus, retention of the placenta, postpartum hemorrhage, pain, degeneration, placental abruption, and intra uterine growth restriction (IUGR) (8, 9).

High prevalence of uterine fibroids significantly impacts healthcare costs worldwide. Estimates indicate that the annual costs associated with uterine fibroids reach up to 34.4 billion dollars annually in the United States, 348 million in Germany, 120 million in France, and 86 million in England, this figure exceed the cost associated with the two other most common cancers in women: breast and ovarian cancer (10).

1.2. Statement of Problem

According to a 2010 World Health Organization report, fibroid affects between 20 to 25% of women with close to 235 million women worldwide who representing approximately 6.6% of global female population estimated to be affected by this condition (13). Furthermore the National Institute of Health (NIH) reported in 2013 that the prevalence of uterine fibroids among reproductive age women ranges from 25% to as high as 80 % (14).

According to study conducted in Italy Uterine fibroids benign tumors of the uterus that are the most common pelvic tumors in the women (15, 16). According to Italian Seveso Women's Health Study, 21.4% of women between the ages 30 to 60 years were diagnosed with fibroids, offering one of the most accurate prevalence estimated for fibroids in a European population (17).

Study conducted in China showed that an overall prevalence of Uterine Fibroids has been reported to be at 9.6%. This prevalence is increase with age, particularly among women aged 50–54 years where it reaches 15.9% (18). Uterine Fibroids often leads to a series of chronic symptoms, including heavy menstrual bleeding, pelvic pain and bladder dysfunction. Additionally, Uterine Fibroids can contribute to reproductive problems such as infertility and pregnancy complications. Due to their high incidence and the severity of symptoms, Uterine Fibroids account for 40% to 60% of hysterectomies performed and result in direct costs estimated between US\$ 4.1–9.4 billion annually in the USA (19, 20).

In the Sub-Saharan African setting and environment so many barriers and challenges faced by women suffering from Uterine Fibroids all too often include inadequate access to appropriate healthcare facilities, lack of available well-trained providers such as gynecologist, poor quality of services , affordability issues and poor nutritional status (21).

In South western Uganda, the prevalence of uterine fibroids among reproductive age women is reported to be 28.2%. Most women present with symptomatic such as pelvic pain, menorrhagia, irregular menses and presence of pelvic mass. Uterine fibroids contribute significantly to morbidity in this population. Identified risk factors for developing fibroids include being overweight and being within the age group of 31 to 50 years (18).

In Ethiopia different studies carried on to assess gynecological problems, but there are no any information regarding to the prevalence and associated factors of uterine fibroids in our country.

So far great attention has been given to decrease the reproductive age women related complication and morbidity. The prevalence and associated factors of uterine fibroids among reproductive age women is still unstudied in Ethiopia, so, this study would be essential to fill these gaps. The aim of this study is to address the information gap on prevalence and associated factors on reproductive age women following uterine fibroids in Gurage Zone hospitals.

1.3. **Significance of the Study**

Prevalence and associated factors of uterine fibroids are does not studied in Ethiopia, So the purpose of this study will be to assess prevalence and associated factors of uterine fibroids among reproductive age women in Gurage zone hospitals.

Therefore, results of this study will help to put clear understanding about prevalence of uterine fibroids among reproductive age women and will identify associated factors of uterine fibroids.

Reproductive age women's are primary beneficiary of this study will help to encourage early diagnosis and detection of uterine fibroid before develops complication get information about preventable and reducible factors.

The study can be used as input for researcher to provide base line information for future studies. Moreover it will be useful for service provider and health sector management for decisions making process regarding to the current situation of uterine fibroids.

2. LITERATURE REVIEW

Uterine fibroids affect quality of life by causing significant morbidity among women of reproductive age and the medical effects of these tumors are associated to their local mass effect, resulting in pressure upon networking organs, pelvic pain or problems related to pregnancy, including unable to conception and recurrent pregnancy loss (22).

2.1. Prevalence of uterine fibroid

According to a 2010 World Health Organization report, fibroids affect between 20 to 25% of women, and close to 235 million women representing 6.6% of global women population are estimated to be affected worldwide (18)

The study conducted in 2021 at Abia State University teaching Hospital, retrospectives cross sectional study conducted on prevalence of uterine fibroid total gynecological clinic diagnosed with uterine fibroids giving a prevalence of approximately 8% (24).

2.2. Associated factors with uterine fibroids

There are many factors that predispose a women to Uterine fibroids, including socio-demographic, obstetrics/gynecological and behavioral related factors such as age, obesity, overweight, caffeine consumption, early age at menarche, black race, family history, chronic disease and red meat consumption are factors that predispose a women to uterine fibroids (22, 23).

2.2.1. Socio demographic characteristic

The study conducted in Italy in 2016 indicated that factors like age of women, overweight (25-29.9kg/m²) and obesity, (BMI > 30 kg/m²), were found to be significantly associated with uterine fi-broids. In this study, the prevalence of uterine fibroids was lower in women who were younger than 35 years (27).

Similarly, the study conducted in China 2022 showed that factors like age of women found to be significantly associated with uterine fibroids (20).

A study conducted in Indian 2020 also indicated that factors like age of women, residence, marital status, educational status, and body mass index found to be significantly associated with uterine fibroids. This study found more than 80% of uterine fibroids affected women were from rural areas than urban areas (25).

The study conducted in Africa in 2022 revealed that factors like women educated tertiary educational level were found to be significantly associated with uterine fibroids. Tertiary educational level women of uterine fibroids in this study were (69.6%) (24).

The studies conducted in different countries in China (35), India (25), Gahanna (26), results showed that factors like, obesity and over weighted women were found to be significantly associated with Uterine Fibroids.

2.2.2. Obstetrics and Gynecology history

The study conducted in Africa Abia state in 2022 indicated that, nulliparous women were found to be more likely to be affected by uterine fibroids. This result showed that null parity was most common significantly associated with uterine fibroids and it account for, 71.4% (24).

The study conducted in Gahanna showed that factors like, parity of women were found to be negatively associated with uterine fibroids (25).

The study conducted in Italy results indicated that factors like, women who use contraceptive were found to be significantly associated with Uterine Fibroids (27)

The study conducted in China 2022 showed that factors like previous abdominal surgery were found to be significantly associated with uterine fibroids (29).

2.2.3. Behavioral related characteristics

The study conducted in USA revealed that factors like, Cigarette smoking were negatively associated with uterine fibroids decrease in risk of uterine fibroids (30).

The study conducted in 2022 in Italy result showed that factors like anxiety of women were found to be significantly associated with uterine fibroids (32).

The study conducted in Africa 2022 showed that factors like, lifestyle (smoking, alcohol, caffeine consumption) were not significantly associated with uterine fibroids (24).

The study conducted in Serbia state 2016 showed that factors like stressed women were found to be significantly associated with uterine fibroids (31).

Many studies revealed that Socio-demographic related factors such as age (younger age group), residence (rural), marital status (married), educational level (higher educational level), overweight and obesity. Obstetrics and Gynecology related operation, nulliparous, infertility, contraceptives and positive family history with uterine fibroids. Behavioral related study's showed like,

cigarette smoking, anxiety, are significant association with uterine fibroids but alcohol, caffeine, chewing chats are no association with uterine fibroids.

2.3. Conceptual framework

This study was assessing to determine the prevalence of uterine fibroids and its associated factors among reproductive age Women in Gurage Zone Hospitals. Review of the literature (24,25,27,29,32,36,38) shows there are determinant factors like, socio-demographic characteristics (age, marital status, residence, educational status, occupation status, overweight), Obstetrics and gynecology related factors, (Party, Infertility, Uterine Surgical history), Contraceptives, Family history and behavioral and mental health related, (Caffeine, Alcohol consumption, Smoking, anxiety), were found to be significantly association with uterine fibroids.

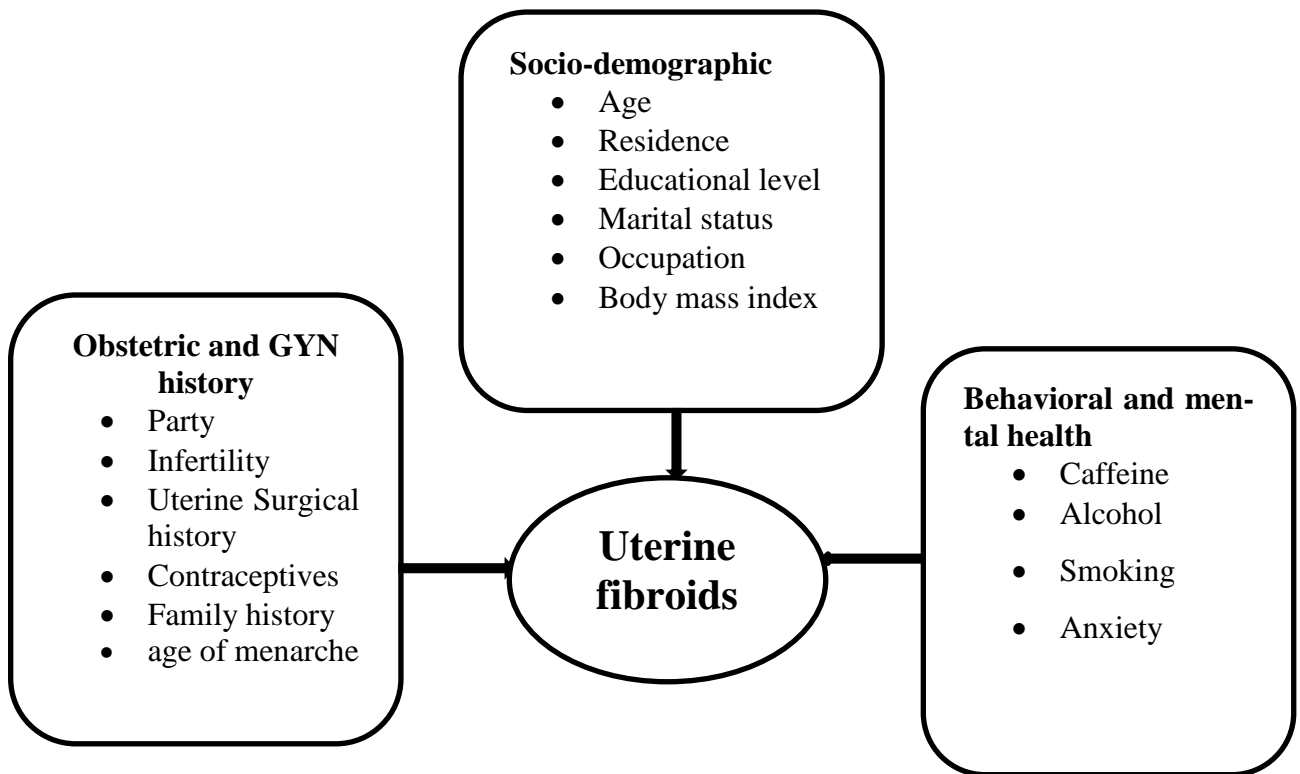


Figure 1: Conceptual framework developed for associated factors with uterine fibroids among reproductive age women attending gynecology unit in Gurage Zone Hospitals, Central Ethiopia, 2024.

3. Objective

3.1. General objective

- ❖ To assess Prevalence of uterine fibroids and associated factors among reproductive age Women attending gynecological unit in Gurage Zone Hospitals, Central Ethiopia, from February to March 2024.

3.2. Specific objective

- To determine the prevalence of uterine fibroids among reproductive age Women.
- To identify factors associated with uterine fibroid among reproductive age Women.

4. Method and Materials

4.1. Study Area

The study was conducted in Gurage Zone Hospitals. Gurage zone is located in the Central Ethiopia, Regional state. This zone is situated approximately 155 kilometers from Addis Ababa (the capital city of Ethiopia), and 113 kilometers from Hosanna (capital city of Central Ethiopia, Regional state). As of 2023, the estimated population of Gurage zone is 1,133,230, which consists of 9 Woredas and 4 administrative cities.

In Gurage Zone there are five hospitals namely, Wolkite university specialized and teaching hospital, Gunchire primary hospital, Quante primary hospital, Agena primary hospital, Attat primary hospital.

A total of two gynecology service delivered hospitals in the zone namely, WUSTH and Attat primary hospitals. This study was conducted in two Gyn service delivered hospitals were included, at Attat primary hospital and Wolkite University specialized and teaching hospital.

4.1.1. Study Design and Period

Institution based cross-sectional study was conducted from February 5th to March 4th 2024.

4.2. Source Population

All reproductive age women who were visited gynecology unit in Gurage zone gynecology service delivered hospitals.

4.2.1. Study Population

All selected reproductive age Women who were visited gynecologic unit during study period.

4.2.2. Inclusion Criteria

All Women who were in the reproductive age group, (15-49 years) attending gynecology unit.

4.2.3. Exclusion Criteria

A woman's who were critically sick and unable to give response.

4.3. Sample Size Determination

The final sample size was calculated by using Epi info Statistical software version 7.2. The calculation employed a formula for a single population proportion $n = (Z_{\alpha/2})^2 (p) (1 - p) / d^2$ where n = denotes the sample size, d = represent the degree of precision = 0.05%, $Z_{\alpha/2}$ = 1.96 for 95% CI and the population proportion was based on finding from similar studies conducted in southwestern Uganda, with p value of 0.282 (28.2%) (36), after adding a 10% none response rate, and the determined final sample size was 342.

Table 1: Sample size calculation on associated factors of uterine fibroids among reproductive age women in Gurage Zone Hospitals, Central Ethiopia, 2024.

Factors	AOR	Outcome among unexposed	% Outcome Among exposed	Power	CI	SS	None response rate	Final SS
Age 30-50 (18)	4.2	47.3	44.5	80	95	84	8.4	92.4
Overweight kg/m ² (18)	4.9	46.1	39.8	80	95	70	7	77
Marital status separated(18)	4.4	46.1	39.8	80	95	92	9.2	101.2

Comparison between the first objective (prevalence) from second objective (associated factor) of uterine fibroids. The sample size of great value was chosen which 311. After adding 10% contingency the final sample size was 342.

4.3.1. Sampling procedure

A previous year, monthly report 400 reproductive age women visited the gynecology unit at the hospitals. The sample sizes were proportionally allocated based on the average monthly visits of reproductive age women to each health facility. Specifically 240 reproductive age women were designated for Wolkite University Specialized Teaching Hospital (WUSTH, $n= 240$) and 160 for Attat Primary Hospital, calculated by using formula ($n/N \times \text{sample size}$). Data from at least four months of the previous year were reviewed data and converted into monthly average.

In this context, $n =$ represents the average monthly visits from the previous year by reproductive age women to the gynecology unit of each health facility.

$N =$ the total average monthly visits for the two health facilities combined ($N= 400$). The Sample size reflects the total number of study units, which are 342 reproductive age women.

Based on the data of each facility monthly load report by using Consecutive sampling techniques was used to select 342 reproductive age women from the total number of women who were attending gynecology unit. The sampling fraction k (i.e. $K_{th} = N / \text{sample size} \Rightarrow 400/342 \approx 1$ which means $K_{th} = 1$), thus, was taken every reproductive age women who were visited gynecology unit was recruited consecutively as study units in each health facilities until the total sample size fulfilled.

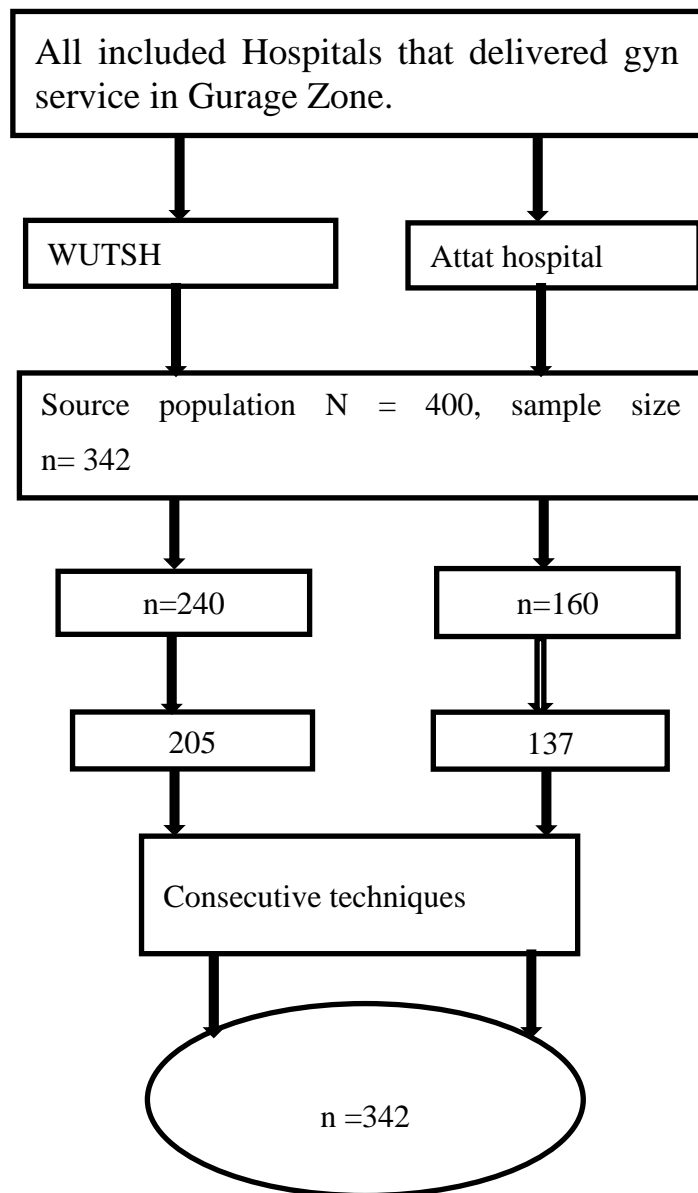


Figure 2: Schemics representation of sampling techniques for uterine fibroids in Gurage Zone Hospitals, 2024.

4.4. Study Variables

Dependent variable

Uterine fibroids

Independent variables

- ❖ **Socio-demographic factors:** like, Age, Residence, Religion, Educational status, marital status, Occupation/income, Body mass index.
- ❖ **Obstetrics and gynecology factors:** like, Party, Infertility, Contraceptive use, uterine related surgery, Family history with uterine fibroid.
- ❖ **Behavioral and mental health related factors:** like Caffeine, Alcohol, Smoking, and Anxiety.

4.6 Operational definition

Uterine fibroids: defined as benign tumors growth in the uterus that affects reproductive age women diagnosed by professional gynecologists.

Body Mass Index (BMI) was defined as: measures the patient weights in kilogram and height in meter square, as a manner then defines patient weight scientifically, underweight, $<18 \text{ m}^2.\text{kg}$, normal weight, $18.5\text{-}24.9 \text{ m}^2.\text{kg}$, overweight, $25\text{-}29.9 \text{ m}^2.\text{kg}$, obesity, $>30 \text{ m}^2.\text{kg}$ (36).

Anxiety: assess the reproductive age women presence or absence of anxiety by using single, yes/no question extent to which had experienced over the past week.

4.7. Data Collection tool and procedure

Before data collection, an interviewer used structured questioners that were developed by reviewing different literatures and customizing based on the study objectives, (24, 25, 27, 29, 32, 36, and 39). The questioner consist a section on socio demographic characteristics, obstetrics and gynecology history, as well as behavioral and mental health related factors associated with uterine fibroids related questions. The tool was first prepared in English and then translated to Amharic language and then back to English by the translator to ensure consistency.

The four data collectors who were nurse/midwife professional who work in hospitals and two supervisors (MSC) who were nurse/midwives professional were allocated. Then training were given for four data collectors who were BSC nurse/midwives, and two supervisors focused on the study objective, the data collection tools, and the overall data collection process. Training was placed on effective interview techniques to ensure that participant feel a comfortable and understood the questions during data collection. Trained data collectors were conducted interviews with reproductive age women approached after they had completed their daily visit or after the admission process, ensuring that they were in a suitable participate in the study at the selected hospitals.

4.7.1. Data Quality Assurance

The questionnaire was prepared in English version and translated in to Amharic and back to English. Training was given for the data collector and supervisor how to interview and collected the data. To assure the quality of data, pre-test was performed one week before data collection among 5% of the total sample size in Butajira General Hospital. The pre-test was done to check for its understandability, clarity and completeness of the questionnaire. Based on the finding of the pretested questionnaire was modified as necessary. Data collection was carried out by trained data collectors from selected hospitals. Close supervision was maintained by supervisors and investigator and any unclear ideas during data collection were resolved by discussion with data collectors. The collected data was reviewed and checked for completeness by investigator before data entry and incomplete data were excluded from analysis.

4.7.2. Data Processing and Analysis

After data collection, the completed questionnaires were thoroughly checked for completeness and the data was entered by using Epi data 4.2 Software and exported to Statistical Package for Social Science (SPSS) version 20 for analysis. The descriptive statistics were computed to summarize the characteristics of study participants such as frequency, percentage, mean, standard deviation. The results were presented through Tables, bar graphs, and pie charts to enhance clarity and understanding. In the analysis, Binary logistic regression was employed to explore the relationship between independent variables and the dependent variable. To account for potential confounding factors, multivariate logistic regressions were subsequently applied. Initially, the bivariate analysis was performed for each predictor variables and those with a P- value <0.25 were included in multivariable analysis. Finally, statistically significance was considered at P-value <0.05 with 95% CI. The goodness of fit of the model was assessed using the Hosmer-lemeshow test which a P- value of 0.466.

4.8. Ethical Consideration

Approval for the study was granted by the Institutional Research Ethics Committee (REC) at Wolkite University. Additionally, permission was secured from the Gurage Zone Health Bureau, and a formal written request was made to the authorities of the selected hospitals to obtain their consent before commencing data collection. Participants were informed about the study's purpose and their consent was obtained to confirm their willingness to take part. They were also made aware that participation was voluntary and that the data collection would only be used for this research. To protect respondents' identities, no names were recorded on the questionnaires.

5. Result

5.1. Socio-demographic characteristics of the respondents

The 321 reproductive age women were included in the study, giving response rate of 94%. The mean age of participants was 33.4 ± 6.8 years. About 157(48.9%) of participants were in the age group 36-45. Partners who were able to read and write were 94 (29.3%). From the total participants, 283 (88.2%) women were married, more than half, 183 (57%) respondents were rural residents, respondents who were Muslim 135(42.1%), and 209(65%) were from Gurage ethnicity. Respondents 94 (29.3%), were Housewives and their partners occupation was governmental employee for 99(30.8%), and 278 (86.6%) of women were 18.5-24.9kg/m² in under normal body weight (Table 2).

Table 2 Socio-demographic characteristics of respondents among reproductive age women attending gynecology unit in Gurage Zone Hospitals, Central Ethiopia, 2024.

Variables	Category	Frequency	Percentage
Age	<25	34	10.6
	25-35	157	48.9
	36-45	109	34
	>45	21	6.5
	Mean \pm SD	33.4 ± 6.8	
Marital status	Single	15	4.7
	Married	283	88.2
	Widowed	19	5.9
	Divorced	4	1.2
Religion	Muslim	135	42.1
	Orthodox	114	35.5
	Protestant	38	11.8
	Catholic	34	10.6
Ethnicity	Gurage	209	65.1
	Oromo	49	15.3
	Amahara	56	17.4
	Others*	7	2.2
Respondents edu status	Unable to read and write	73	22.7
	Able to read and write	73	22.7
	Elementary	49	15.3
	Secondary	51	15.9
	Diploma & above	75	23.4

Partner edu status	Unable to read and write	46	14.3
	Able to read and write	94	29.3
	Elementary	51	15.9
	Secondary	34	10.6
	Diploma & above	96	29.9
Respondents occupation	House wife	94	29.3
	Governmental	81	25.2
	Private employee	42	13.1
	Business	56	17.4
	Others**	48	15.5
Partner occupation	Non worker	70	21.8
	Governmental	99	30.8
	Private employee	28	8.7
	Business	82	25.5
	Others	42	13.1
Residence	Urban	183	57
	Rural	138	43
Body mass index	<18.5kg/m ²	7	2.2
	18.5-24.9kg/m ²	278	86.6
	25 - 29.5kg/m ²	34	10.6
	>30kg/m ²	1	0.6

* (Wolyita, Kembata, Hadiya, Silte)

** (Farmer, daily worker, Students)

5.2. Obstetric and gynecological characteristics of the respondents

From the total respondents, 277(86.3%) women were multiparous and from total 321 respondents, 71(22.1%) women was report affected by uterine fibroids. Respondents were 70(21.8%) have obstetric and gynecologic related operation. Respondents' families who are affected by uterine fibroids were 67(20.9%). Moreover, 130 (40.5%) of the respondents who were used contraceptives, women were 252 (78.7%) under normal age menarche, and 165(51.4%) women age of the first pregnancy was 20-30 years (Table 3).

Table 3 Obstetrics and gynecology characteristics of respondents among reproductive age women attending gynecology unit in Gurage Zone Hospitals, central Ethiopia, 2024.

Variable	Category	Frequency	Percent
Ever gave birth	Nulliparous	44	13.7
	Multipara	277	86.3
Obstetric & gyn operation	Yes	70	21.8
	No	250	77.9
Known uterine fibroids	Yes	71	22.1
	No	250	77.9
Family history of uterine fibroids	Yes	67	20.9
	No	253	79.1
Ever Contraceptive use	Yes	130	40.5
	No	190	59.2
Age of menarche	<12 early	8	2.7
	13-15 normal	252	78.7
	>16 late	59	18.6
Age of first pregnancy	< 20	124	38.6
	20-30	165	51.4
	>30	15	4.7

5.3. Behavioral and mental health characteristics of the respondents

From the 321 participants, 300 (93.8%) of them never drinking alcohol. Regarding cigarette smoking, 318(99.1%) of women never smoke cigarette. From the total respondents' also only one (0.3%) respondent currently smoking and, 2(0.6%) respondents were smoking in the past. Similarly majority of the women drink coffee currently 253(78.8%) followed by 3.4% who drank in the past and 17.8%, who never drink Coffee. From the total respondents 117(36.4%) of women responded as they were affected by Anxiety (Table 4).

Table 4 Behavioral and Mental health characteristics of respondents among reproductive age women attending gynecology unit in Gurage Zone Hospitals, Central Ethiopia, 2024.

Variables	Category	Frequency	Percentage
Alcohol	Never	300	93.8
	Past	10	3.1
	Currently	10	3.1
Coffee	Never	57	17.8
	Past year	11	3.4
	Currently	253	78.8
Smoking	Never	318	99.1
	Past year	2	0.6
	Currently	1	0.3
Anxiety	Yes	89	27.4
	No	232	72.6

5.4. Prevalence of uterine fibroids

Among the total 321 reproductive age women on gynecological unit (22.1%) women were diagnosed with uterine fibroids (Figure 3).

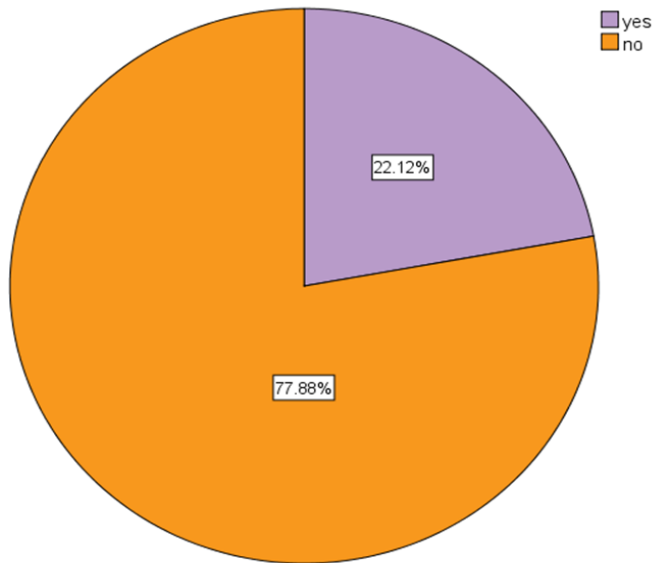


Figure 3: Prevalence of uterine fibroids among reproductive age women attending gynecology unit in Gurage Zone Hospitals, central Ethiopia, 2024.

5.5. Factors associated with uterine fibroids

In the bivariable analysis, predictors such as, age of respondents, education status of respondents and partner, occupation, Body mass index, parity, infertility, operation history, Age of first pregnancy, Age of menarche, ever use contraceptive, and Anxiety, were candidate variable for multivariable model.

After adjusting for possible confounding factors using multivariable logistic regression model: age of participants, respondent's education, obstetrics and gynecology operation history, infertility, contraceptives use, and late age of menarche were found to be statically significant with uterine fibroids.

Participants whose age was 36-45 years were found to be eight times more likely to be affected by uterine fibroid than participants whose age was less than 25 years, (AOR= 8.635, 95% CI = [1.179 - 63.223]). Respondents with educational status of the secondary level of women were 96% (AOR= .040, 95% CI = [.003-.485]) less likely to be affected by uterine fibroids than those women with diploma and above. Participants who had previous history of obstetrics and gynecology related operation were fifteen times, (AOR = 15.520, 95% CI = [5.755-41.854]) more likely to be affected by uterine fibroids than their counterparts. Women unable to fertile were eighteen times, (AOR = 18.626, 95% CI = [4.336 – 80.011]) more likely to be affected by uterine fibroids than their counterparts. Similarly women who use contraceptives were 73% (AOR = .267, 95% CI = [.094-.759]) less likely to be affected by uterine fibroids than their counterpart. Late menarche age were 97% (AOR = .031, 95% CI = [.001 -.646]) less likely to be affected by uterine fibroids than early menarche age. And family history were six times (AOR = 6.705, 95% CI = [2.464 - 18.248]) more likely to be affected by uterine fibroids than their counterpart (Table 5).

Table 5 Factors associated with uterine fibroid among reproductive age women attending gynecology unit in Gurage Zone Hospitals, Central Ethiopia, 2024.

Variables		Known uterine fibroids		COR (95% CI)	AOR (95%CI)	p-value
		Yes	No			
Age	Age < 25	5(2)	29(9)		1	
	Age 25-35	22 (7)	135(42)	.945(.331- 2.703)	3.328 (.529-20.924)	.200
	Age 36-45	38 (11)	71(22)	3.104(1.111-8.674)	8.635(1.179 -.63.223) *	.034
	Age >45	6(2)	15(5)	2.320(.607- 8.865)	2.330(.169 – 32.046)	.527
Respondent education	Unable to Read and write	20(6.2)	53(16.5)	2.767(1.164-6.578)	.829(.179– 3.847)	.811
	Read and write	22(6.9)	51(15.9)	3.163(1.342-7.455)	1.546(.187- 12.873)	.686
	Elementary	8(2.5)	41(12.8)	1.431(.511- 4.004)	1.673(.181 – 15.453)	.650
	Secondary Diploma and above	12(3.7)	39(12.1)	2.256(.872- 5.838)	.040(.003 – .485) *	.011
Respondent occupation	House hold	23(7.2)	71(22.1)	.540[.255-1.143]	.899(.274-2.949)	.860
	Governmental	12(3.7)	69(21.5)	.290[.124-.676]	.878(.157 -4.920)	.883
	Private worker	11(3.4)	31(9.7)	.591[.240-1.458]	.801(.139 -4.632)	.804
	Business	7(2.2)	49(15.3)	.238[.089-.637]	1.055(.187- 5.940)	.952
	Other	18(5.6)	30(9.3)		1	
Partner Occupation	Owner	19(5.9)	51(15.9)	.497[.222-1.113]	.455(.114-1.816)	.313
	Governmental	18(5.6)	81(25.2)	.296[.134-.657]	.176(.021-1.488)	.228
	Private	4(1.3)	24(7.5)	.222[065-.754]	.179(.018-1.801)	.193
	Business	12(3.7)	70(21.8)	.229[.096-.543]	.271(.059-1.249)	.075
	Others	18(5.6)	24(7.5)		1	
BMI	Underweight	2(0.6)	5(1.6)		1	
	Normal	55(17.1)	223(69.8)	.600[.102-3.536]	.885(.054-14.569)	.932
	Overweight	14(4.4)	21(6.5)	1.622[.306-8.582]	1.547(.073-32.860)	.780
Ever gave birth	yes	222(17.1)	55(69.2)		1	
	No	28(5)	16(8.7)	2.306[1.167-4.580]	2.629(.271-25.487)	.340
Operation	yes	41(12.8)	30(9.3)	10.368[5.635-19.074]	15.520(5.755 -41.854) *	.000
	No	29(9.1)	220(68.8)		1	
Infertility	yes	29(9)	9(2.9)	18.336[8.103-41.490]	18.626(4.336- 80.011) *	.000
	No	42(13.2)	239(74.9)		1	
Age of menarche	Early < 12	6(1.9)	2(0.6)		1	
	normal 13-15	204(15)	48(63.9)	.071[.015- .401]	.083(.005- 1.458)	.209
	late >16	43(5.1)	16(13.5)	.124[.023-.679]	.031(.001- .646)*	.042
Family history	yes	48(10.9)	35(15)	4.071(2.321- 7.140)	6.705(2.464- 18.248) *	.000
	No	201(11.3)	36(62.8)		1	
Contraceptives	Yes	118(3.8)	12(36.8)	.226[.116-.441]	.267(.094-.759) *	0.13
	No	131(18.5)	59(40.9)		1	
Anxiety	Yes	32(10)	56(17.5)	2.827[1.625-4.922]	1.180(.434-3.206)	.816
	No	39(12.2)	193(60.3)		1	

1=Reference category

* statistically significant at P< 0.0

6. Discussion

This facility based cross sectional study was conducted aimed to determine the prevalence of uterine fibroids and the associated factors among reproductive age women in the Gurage zone.

The finding of this study indicated that the prevalence of uterine fibroids was 22.1%. This finding was found to be relatively higher than the studies conducted in, Abia State in Nigeria 8%, [24], North solvan Italy, 21.2% [27], Ethiopia in Addis Ababa prevalence of uterine fibroids among pregnant women's, 15.3% [20]. On the other hand, the result of this study was relatively low compared with studies conducted in Southwestern Uganda, 28.2% [36], South Nigeria, 31.6% [37], and Ghana, 36.9 % [26]. The reason for this discrepancy could be the difference in socio-demographic characteristics, sample size, lifestyle of study participants.

In this study a women with advance age (36-45) years were more likely to be affected by uterine fibroids than young age less than 25. This result is supported by another studies conducted from China, [20], India, [25], Italy, [27], and South Western Uganda, [36]. This might be due to the hormonal change contributing to fibroids development estrogen and progesterone effects stimulates the growth of the uterine lining and it can promote the growth of fibroids.

Participant with secondary educated level were less likely to been affected with uterine fibroids than those women with diploma and above educational level. This study found to be similar with the study conducted in Serbia state in Africa [24]. This could be the reason of higher educated women who delay childbirth or have fewer children might have an increased risk of developing uterine fibroids due to prolonged exposure to estrogen.

In this study, family history was strong predictors variable for uterine fibroids. This finding were supported by other studies done in Serbia state of in Africa, [24], New Zealand [38], this might be due to genetic predisposition to developing fibroids, especially first-degree relatives [38].

The finding of our study showed that obstetrics and gynecology related operation status of women were significant association with uterine fibroids. This study was supported by studies conducted in china, [29], Nigeria, [37] New Zealand [38]. This is because operations scar in the uterus were more favorable site for growth of fibroids.

This study found that women who had infertility were strongly associated with uterine fibroids that its counterparts. This is similar to others studies such as in Nigeria, [37] New Zealand [38].

This may be due to the exposure of hormonal (estrogen and progesterone) imbalance effect, it attribute to uterine fibroids.

In this study a women who had used contraceptives were less likely to be affected by uterine fibroids than were those women who had never used contraceptives. This result was also supported by other studies conducted in Italy [27], New Zealand [38]. This may be due to which birth control contraceptives might have protective role of occurrence of fibroids.

The finding of this study showed that late menarche age women were less likely to be affect by uterine fibroids than early menarche age. Which is similar to other studies done in Abia state [24], South west Uganda [36]. This may be due to prolonged exposure to estrogen and an increased numbers of menstrual cycles, which may increase the probability of uterine fibroids.

7. Strength and Limitation

7.1. Strength of the study

- ✓ Since this study was conducted first time in Ethiopia so, obtained a base line information for researcher and others responsible body.

7.2. Limitations

- ✓ The study was conducted in a cross-sectional manner and did not demonstrate a cause and effect relationship.

8. Conclusion and Recommendation

8.1. Conclusion

This study studied the prevalence and associated factors of uterine fibroids among women reproductive age attending in gynecology unit in Gurage zone hospitals from **February to March 2024**. The results of this study showed that the prevalence of uterine fibroids to be relatively high. Factors associated with uterine fibroids were age of women, participant educational status, infertility, obstetrics and gynecology related operation, contraceptives, family history, and late menarche age.

8.2. Recommendation

Researcher: Further research should be conduct on the following

- ✓ There should be considering further studies focusing on ultrasound based evaluation studies.

Health provider

- ✓ Suggesting that women of reproductive age visiting the gynecology department undergo routine ultrasound scans to facilitate early detection of uterine fibroids.
- ✓ Therefore, encourage of the women early childbirth, treat infertility as possible, promote oral contraceptives pills through long times among women of reproductive age by promotion of health information and health education program.

Health office

- ✓ Gynecology services should be implemented in all health institutions in Gurage Zone to ensure comprehensive reproductive health care for women and all concerned bodies should take a part.

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38. C Farquhar, 3.3 Arroll, A Ekeroma, G Fentiman, A Lethaby, L Rademaker, H Roberts, L Sadler, J Strid *Working Party of the New Zealand Guidelines Group* evidence-based guideline for the management of uterine fibroids

10. Annex:

10.1. English version

Wolkite University
School of Medicine and Health Science Collage,
Department of Nursing

Part one: information sheet

My name is _____. Currently I am a student at College of health sciences, WKU. I am conducting a research to _____, 2023/24.

You are randomly selected to participate in the study. The study will provide information that might enable the health personnel, the government, and other higher institution to promote, prevent and rehabilitate problems related to _____ the study and its procedures have been approved by the appropriate authorities. We would like to take your time to respond to our interview questions and it will take approximately half an hour. We request you to answer as truthfully as possible. Your answer will not be revealed to the health personnel or any other people, and the information you give will be treated anonymously and confidential. This research imposes no risk and therefore no compensation will be provided for your participation in this study. Your participation is totally voluntary and you can anytime withdraw or refuse to continue, and this will not influence the way you are treated in the health institution or in the community.

Part two: Informed consent

I have been explained all information and procedures that are part of this research study and I have understood the same. I understand that the research imposes no risk on my life and therefore no compensation would be provided.

I hereby agree to participate in this research study and give my voluntary consent. I hereby also give rights to the researcher for collecting the data that are required for the study.

Agreed _____ **Disagreed** _____

Name of the interviewer: _____ Sign. _____ Date of interview _____

Name of the supervisor: _____ Sign. _____ Date _____ **Investigators** _____

Address: phone: _____ **: Email:** _____

Section One: Socio-demographic Characteristics

101	Age in years	----- Years
102	Marital status: -	A-Married B-Single C-Divorced D -Widowed
103	Religion	A-Muslim B-Ortodox C-Protestant D-Catholic E -Other (Specify)
104	Ethnicity	A Gurage B Kebena C Amhara D--Oromo E Other (specify)
105	Respondents Occupation	A--Housewife B Government employee C—Private-employee D--Business E Other (Specify)
106	Partner occupation if married	A Government employee B—Private-employee C--Business D Other (Specify) -----
107	Monthly income in cash	----- Birr
108	Respondent Educational status:	A unable to read and write B Read & write

		C--Elementary D--Secondary E Diploma & above
109	Partner education if married	A Unable to read and write B—Read-and-write C--Elementary D--Secondary E Diploma & above
110	Residence	A rural B urban
111	If you have known obesity/ over weight?	A yes B no
112	If yes above 11. How long your BMI ?	-----m ² /kg

Part two: obstetric and gyn related question

201	Ever you gave childbirth.	A yes B no
202	If yes Q .1 How many child you have?	-----
203	Age of first pregnancy	-----
204	If yes Q .2 At what age you get your first pregnancy?	-----
205	Age of menarche	-----
206	Ever you have infertility.	A yes B No
207	If yes above Q. 5 Types of infertility ?	A total B Sub total
208	If yes above Q. 5 how long periods of duration	-----

209	If you have obstetric/gyn related surgery?	A yes B no
210	If yes above Q.11 What is reason of surgery?	Specify reason _____
211	Have you known uterine fibroid?	A yes B no
212	If yes above Q .14 types of uterine fibroids	-----
213	If yes Q. 14 : What types of treatment received ?	A medical B surgical
214	If Q. 14 yes surgical : methods of surgery	A myomectomy B hysterectomy
215	Your families have known uterine fibroid.	A yes B no
216	If yes above. Q19. Relationship with you?	A mothers B sister C Others specify _____
217	Ever you used contraceptive.	A yes B no
218	If yes above Q .19 Types of Contraceptives used	A COC B IUD C Permanent D Others _____

Part 3: Behavioral and mental health related question

3 0 1	Do you drink Alcohol	A never B formerly C currently
3 0 2	If yes current. amount of drinking per day	-----

303	If yes current. what types of alcohol use?	A bear B local areke C tella D other specify _____
304	Do you drink coffee?	A never B formerly C currently
305	If yes above Q.4 How many cup of coffee drink daily?	-----
306	Do you smoking cigarette?	A never B formerly C currently
307	If yes currently. How many pack daily smoking?	-----
308	You have Anxiety.	A yes B no

10.2. Annex II (Amharic version)

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ጤና ሳይንስ ኮሌጅ

ነርቢንግ ምህርት ክፍል

ክፍል 1 : የመረጃ ማስገንዘቢያ ገጽ

እኔ ስሜ ----- አባላለሁ የመጣሁት ከወልቂጤ ዩንቨርሲቲ ጤና ሳይንስ ኮሌጅ በድህረ ምረቃ ትምህርት ፕሮግራም የነርቢንግ ትምህርት ክፍል ሲሆን ጥናቱ የሚሰራው -----
-2023/24::

በጥናቱ ላይ መሳተፍ በፈቃደኝነት ላይ የተመረከዘና የምትሰጡት መረጃም ለጥናቱ አላማ ብቻ የሚሆን ነው። በጥናቱ ላይ አላመሳተፍ ወይም መሳተፍ ጀምረው ማቋረጥ ካልፈገጉ ማቆም ይችላሉ። እንዲሁም መመለስ የማይፈልጉትን ጥያቄዎች አለመመለስ ይችላሉ። ጥያቄው የሚወስደው ጊዜ በአማካይ 30 ደቅቃ ብቻ ነው። ይህ ጊዜዎትን የሚይዝ ቢሆንም በመውለድ አድሜ ክልል ባሉ ሴቶች የማህጸን ውስጥ አጤ ስፋትና ስርጭት ለማጥናት ክፍተኛ ሚና ያለው በመሆኑ እንደተባበሩኝ ስል በአክብሮት እጠይቅዎተለሁ። ነገር ግን በጥናቱ ላይ በመሳተፍ ምንም ዓይነት ተፅእኖ ወይም ጉዳት የለውም። ስለሆነ ም ተሳታፊዎች ማንነታቸውን የሚገልጹ ስም በመጠይቁ በማናቸውም ገጽ ላይ አይጻፍም።

ክፍል 2 : የፍቃደኝነት ማረጋገጫ

የጥናቱ አላማና ጥቅም በአግባቡ መረጃ ተሰጥቶኝ በደንብ ተረድቼ ። የዚህ ጥናት ተሳታፊ በመሆኔ ምንም አይነት በራሴም ሆነ በቤተሰቤ ምንም አይነት ጉዳት እንደማይደርስብኝ አምኜበት። በጥናቱ ላይ ተሳታፊ በመሆኔ ምንም አይነት የገንዘብም ሆነ የአይነት ክፍያ አልያም ስጦታ ከጥናቱ በኋላ እንደማይሰጥ ተገንዝቤአለሁ።

የተሰጠኝን መግለጫ በአግባቡ ተረድቻለው። በጥናቱ ላይ በፍቃደኝነት ተሳታፊ መሆኔን በፊርማዬ አረጋግጣለሁ።

ፈቃደኛ ነኝ ----- ፍቃደኛ እይደለሁም -----

ቃለ መጠቁን ያደረገው ባለሙያ ስም ----- ፊርማ ----- ቀን -----

ክትትል የሚያደርገው ባለሙያ ስም ----- ፊርማ ----- ቀን -----

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ጥናቱ የሚያጠናው ባለቤት

ስም ----- ስፍራ ----- ኢ.ሜ.ይል አድራሻ -----

ክፍል 1: የማህበራዊ ህይወት ጥያቄዎች

ቁጥር	ጥያቄ	መልስ	መለያ
101	ዕድሜ በእመት	-----	
102	የጋብቻ ሁኔታ	1 ያላገባች 2 ያገባች 3 ባል የሞተባት 4 የፈታች	
103	ሀይማኖት	1 ሙስሊም 2 ኦርቶዶክስ 3 ፕሮቴስታንት 4 ካቶሊክ 5 ሌላ ካለ ይገለጽ -----	
104	ብሔር	1 ጉራጌ 2 ኦሮሞ 3 ትግሬ 4 አማራ 5 ሌላ ካለ ይገለጽ__	
105	የትምህርት ሁኔታ	1 ማንበብና መጻፍ የማትችል 2 ማንበብና መጻፍ የምትችል 3 የመጀመሪያ ደረጃ 4 ሁለተኛ ደረጃ 5 ዲፕልማና ከዚያ በላይ_____	
106	ካገቡ የባለቤትዎ የትምህርት ሁኔታ	1-ማንበብና መጻፍ የማይችል 2-ማንበብና መጻፍ የሚችል 3 የመጀመሪያ ደረጃ	

		4 ሁለተኛ ደረጃ 5-ዲፕልማና-ከዚያ በላይ _____	
107	የስራ ሁኔታ	1-የጉልበት-ሰራተኛ 2 የመንግስት ሰራተኛ 3 የግል ሰራተኛ 4-ንግድ 5 ሌላ ካለ ይግለጹ ----	
108	ካገቡ የባለቤትዎ የስራ ሁኔታ	1-የጉልበት-ሰራተኛ 2 የመንግስት ሰራተኛ 3 የግል ሰራተኛ 4-ንግድ 5 ሌላ ካለ ይግለጹ ----	
109	የወር ገቢ ቡብር	-----	
110	የመኖሪያ ቦታ	1 ከተማ 2 ገጠር	
111	የውፍረት መጠንዎ ምን ያህል ነው ?	-----m ² /kg	

ክፍል 2: ከወሊድና ከማሕጸን ጋር የተመለከተ

ቁጥር	ጥያቄ	መልስ	
201	ስንት ልጅ ወልደዋል ?	-----	
202	የመጀመሪያ ልጅዎን በስንት አመት ነው ያረገዙት	-----	
203	መጀመሪያ የወር አበባ ያዩት በስንት አመት ነው	-----	
204	በህክምና የተረጋገጠ መካንነት አለው ?	1 አው 2 የለኝም	
205	ጥያቄ ቁ .4 መልሱ አዎ ከሆነ፣ ለምን ያህል ጊዜ ነው ?	-----	
206	ከሞህጸን ጋር የተያያዘ ሉፕርሽን ተሰርቶሎት ያውቃል?	1 አው 2 አያውቅም	
207	ጥያቄ ቁ 10 መልሱ አዎ ከሆነ፣ የሉፕራሽኑን ምክንያት ምን ነበር ?	1 _____ ምክንያቱን ይግለጹ _____	

208	በህክምና የተረጋገጠ የማህጸን ውስጥ አጢ አሎት ?	1 እው 2 የለኝም	
209	ጥያቄ ቁ 12 መልሶ አዎ ከሆነ፡ የአጢውን አይነት ይግለጹ	-----	
210	ጥያቄ ቁ 12 መልሶ አዎ ከሆነ፡ ምን አይነት የህክምና ዘዴ ተደረገሎት ?	1 በመድሀኒት 2 በቀዶ ህክምና	
211	ጥያቄ ቁ 15 መልሶ በቀኑ ህክምና ከሆነ፡ በምን አይነት ዘዴ ነው	1 አጢው ያለበት ቦታ ብቻ 2 ሙሉ ኦፕሬሽን	
212	በቤተሰብ አባል በህክምና የታወቀ የማህጸን አጢ አለ ?	1 እው 2 የለም	
213	ጥ ቁ 17 መልሶ እው ከሆነ፡ የዝምድና ሁኔታ	1 በእናት 2 በአህት 3 ሌላ ካለ ይጥቀሱ-----	
214	የወሊድ መከላከያ ይጠቀማሉ ?	1 እው 2 አልጠቀምም	
215	ጥያቄ ቁ 18 መልሶ አዎ ከሆነ፡ አይነቱን ይግለጹ	1 እንክብል 2 በመርፌ 3 በክንድ የሚቀበር 4 በማህጸን የሚቀመጥ 5-ሌላ-ካለ-ይግለጹ _____	

ክፍል 3: ባህሪያ የተመለከተ

301	አልኮል ይጠጣሉ ?	1 በፍጹም 2 ከዚህ በፊት 3 አሁን ላይ አጠጣለሁ	
302	ጥያቄ ቁ 1 መልሶ አሁን ላይ የሚጠጡ ከሆነ፡ በሳምንት ምን ያህል ይጠጣሉ ?	-----	
303	ጥያቄ ቁ 1 መልሶ አሁን የሚጠጡ ከሆነ፡ ምን አይነት መጠጥ ነው ?	1 ቢራ 2 አረቄ 3 ጠላ 4-ሌላ-ካለ ይጥቀሱ_____	
304	ቡና ይጠጣሉ ?	1 በፍጹም 2 ከዚህ በፊት አጠጣ ነበር 3 አሁን ላይ አጠጣለሁ	

305	ጥ ቁ 4 መልሶ አሁን አጠግለሁ ክሆነ፡ በቀን የሚጠጡት መጠን በስኒ	-----	
306	ሲጋራ ያጨሳሉ ?	1 በፍጹም 2 ከዚህ በፊት አጨስ ነበር 3 አሁን ላይ አጨሳለሁ	
307	ጥ ቁ 6 መልሶ አሁን አጨሳለሁ ክሆነ፡ በቀን የሚያጨሱት ስንት ፓኮነው	-----	
308	የጭንቀት ህመም አጋጥሞታል ?	1 አው 2 የለም	

